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Prevalence of Parasitic Diseases (Clinical Cases) in Cattle at Joypurhat Sadar Upazila of Bangladesh

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Abstract:

A study was undertaken to determine the clinical prevalence of parasitic diseases in cattle at the Upazilla Veterinary Hospital (UVH), Sadar, Joypurhat district of Bangladesh during June, 2016 to July, 2017. According to the case record, a total of 3560 sick cattle were examined during this period. Disease diagnosis was made on the basis of owner's statement, general examination, physical examination and clinical examination. Out of 3560 clinical caseof cattle, 681 (19.13%) cattle were infested with different ecto and endoparasites. According to the study the prevalence of tick infestation (5.48%) was highest followed by fascioliasis (2.98%), ascariasis (2.44%), paramphistomiasis (2.13%), maggot (1.71%), mite infestation (1.32%), schistosomiasis (1.24%), hump sore (1.18%) and haemonchiasis (0.65%) respectively. The sexwise prevalence of parasitic diseases in cattle was found more or less similar in male (19.0%) and female animals (19.26%). It was observed that there was no significant (P>0.05) variation in the prevalence of parasitic diseases in cattle in relation to age of the cattle and season of the year. The overall prevalence of parasitic diseases was found more in young (19.76%) than adult (18.59%) cattle. The overall prevalence of parasitic diseases was higher in winter season (20.10%) followed by rainy season (19.7%) and summer season (17.85%) respectively. This study will provide necessary information regarding parasitic diseases in cattle of Joypurhat Sadar for their effective control and better production of cattle which will be beneficial for poor farmer.

Key words: Parasitic disease, clinical prevalence, Cattle, Joypurhat, Diagnosis and Infestation

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Introduction

Bangladesh is densely populated developing country where about 45.1% people depend on agriculture for their livelihood (BER, 2016).About 80% of our population is employed in agriculture and livestock farming. Twenty percent people are involved in livestock sector as permanent occupation. The contribution ofLivestock in the magnitude of Gross Domestic Product (GDP) is about 1.66 % in Bangladesh(FY, 2015-16). The PRSP (Poverty Reduction Strategy Paper) stresses the importance of the livestock subsector in sustaining the acceleration of the poverty reduction in the country.(National Livestock Development Policy,2007; Ministry of Livestock & Fisheries).Livestock sub sector contributes 12% to agricultural GDP and 3% to National economy (Mia,2013). Though Bangladesh has one of the highest livestock populations in the world, but characterized by very low productivity, particularly in cattle because of low productivity, inferior genetic material,indiscriminate breeding leading to severe genetic erosion, neglect of animal health care and non-existence of an efficient value chain, shortage of feeds and fodder resources and lack of awareness(BIDS, 2012).

The management practices of animals and geo-climatic condition ofBangladesh are favorable for the occurrence of various diseases(Onneshan, 2014). Among the various constrains in the development of cattle, disease are one of the most important limiting factors which not only degrade the productivity of cows but also causing mortality (Sarker et al. 1999). Parasitic diseases are one of the major problems in Bangladesh which cause poor productive and reproductive performance. Parasites are organisms that are metabolically and physiologically dependent on other organisms, their hosts, for survival and development (Sobecka, 2001). The distribution of parasitic diseases is throughout the world, but it varies in effects in the developed and developing world. The most impact of diseases is probably due to costs of control, particularly helminthicparasitosis of the developed world. Watery diarrhea, weakness, weight loss, decrease in milk production, reduced product quality, mortality and other secondary infections are caused by trematode parasites (Gupta et al., 1978; Solusby, 1982). Helminth parasites are potential health hazard to livestock population and produce enormous economic losses (Kakar and Kakarsulemankhel, 2008).

The Veterinary hospitals are the ideal and compatible resource of information about animal diseases and their illustration. Veterinary clinics and hospitals become a crucial source of the information about animal diseases and their management. The present study was conducted to assess the clinical prevalence of parasitic diseases in cattle at Sadar upazila, Joypurhat district of Bangladesh in relation to age, sex and seasons of the year and develop a control strategy of these diseases.

Materials and methods

Study area and duration: This clinical study was undertaken at the Upazila Veterinary Hospital, Sadar, Joypurhatto determine the general clinical prevalence of parasitic diseases in cattle during .

Study animal: The patient registered and physically visited for the diagnosis and treatment at the upazila veterinary Hospital, Sadar in Joypurhat district were considered as the study animals.A total of 3560 cattle were recorded. According to age, cattle were categorized into young (<2 years) and adult (> 2 years).The season comprised summer (March to June), rainy (July to October) and winter (November to February).

Clinical examination of animal: According the merit of the individual case, general clinicalexamination were conducted on the basis of disease history and owners complaint, symptoms and techniques such asmicroscopic examination, laboratory common techniques used by Rosenberger (1979) and Samad et al., (1988).

Statistical analysis: The collected data was analyzed by a statistical software namely,SPSS version 20. For the significant differences in the conditions of the diseases among groups and seasons the Chi-square test was done.

Results and discussions

Prevalence of Parasitic diseases in cattle

The overall prevalence of parasitic diseases in cattle was 19.13% as shown in (Table 1).The highest prevalence of parasitic disease was observed in tick infestation (5.48%) followed by fascioliasis (2.98%), ascariasis (2.44%), paramphistomiasis (2.13%), maggot (1.71%), mite infestation (1.32%), schistosomiasis (1.24%), hump sore (1.18%) and haemonchiasis (0.65%) respectively (Table 1).The present findings are similar to the findings of Rahmanet al., (2012) and Pallabet al., (2012) who reported that the prevalence of parasitic diseases was 20.4% and 26.79% respectively. Karim et al., (2014) reported higher prevalence of fascioliasis (19.5%), paramphistomiasis (48.0%), schistosomiasis (5.9%) in cattle in Magurathan the present study.Chowdhuryet al., (1993) also recorded higher prevalence of fascioliasis (12.4%), paramphistomiasis (8.8%) but more or less similar prevalence of ascariasis (1.5%) in cattle. Kamal et al., (1996) reported 65.45% tick infestation and 5.19% mite infestation in cattle which are higher than the present observation.The maggot infestation found in the present study is in the agreement with the observation of Noor uddin et al., (1986), Dash and Hashim (1996) who reported 1.07% and 2.20% of maggot infested wound in cattle. Rahman et al., (1972) and Kabir et al., (2010) who found 1.45% and 2.87% clinical incidence of humpsore in cattle respectively which is close to the present findings. Rahmanet al., (1972) also reported 11.0% maggot infestation in cattle. Squire et al., (2013) recorded

Fasciola (51.1%), Dicrocoelium (39.8%), Eimeria (29.4%), Paramphistomum (25.9%), Schistosoma (21.7%), Ascaris (6.1%). Fasciola, Paramphistomum, and Schistosoma infections were higher ($p<0.005$) in the adults (>24 months old).

Prevalence of Parasitic diseases in cattle based on season

It was evident from (Table 2) that there was no significant variationin the prevalence of parasitic diseases in cattle in relation to season of the year in study area. The overall prevalence of parasitic diseases was higher in winter season (20.10%) than rainy season (19.7%) and summer season (17.85%). In all three seasons the highest prevalence of parasitic disease was observed in tick infestation whereas the lowest prevalence was observed in haemonchiasis (Table 2).The present results are in agreement with the findings of Rahman et al., (2012) who recorded that the prevalence of parasitic diseases was higher in winter season (53.7%) followed by rainy season (52.2%) and summer season (46.9%).Kamal et al., (1996) reported that tick infestation was highest in summer season than rainy and winter season which is dissimilar with the present results. Kabir et al., (2011) reported that prevalence of tick infestation was significantly ($p<0.01$) higher in summer (41.66%) season followed by winter (31.5%) season.

Prevalence of Parasitic diseases in cattle based on sex

The sexwiseprevalence of parasitic diseases in cattle was found more or less similar in male (19.0%) and female animals(19.26%) (Table 3).Prevalence of parasitic diseases in cattle was insignificant($P>0.05$).The higher prevalence was found in male in case of hump sore and maggot but other parasitic diseases were higher in female (Table 3).Kuchaiet al., (2011) and Chowdhury et al., (1993) reported that fascioliasis was higher in female than male cattle which is similar to the present findings but dissimilar results were found in the observation of Kabir et al., (2010) who observed that fascioliasis was higher in male (18.04%) than female (5.45%) but similar result was found in case of hump sore. Kabir et al., (2011) recorded that infestation of tick was significantly higher ($p<0.01$) in female (59.37%) than the male (35.83%) cattle. Rony et al., (2010) also observed that older cattle aged > 8 years are more (71.11%) susceptible than that of adults aged > 2-8 years (67.74%), and young aged ≤2 years (47.05%).

Prevalence of Parasitic diseases in cattle based on age

There was insignificant ($P>0.05$) variation of parasitic diseases in cattle in relation to the age of the cattle shown in Table 4. Prevalence of parasitic diseases was found more in young(19.76%) than adult(18.59%) cattle. The higher prevalence was found in fascioliasis, schistomiasis, paramphistomiasis and hump sore in adult than young cattle but others were higher in young cattle (Table 4). The present findings are similar to the findings of Kabir et al., (2010) who found that adult cattle (11.49%) were more prone to fascioliasis than young (2.01%) but are not in agreement with the findings of Kuchaiet al., (2011).Kabiret al., (2011) recorded that prevalence was significantly ($p<0.01$) higher in cattle of ≤1.5 years of age (46.28%) than in cattle of >1.5 years of age (27.80%). In females, prevalence of ectoparasitic

infestation was observed significantly (p< 0.005) higher than that of male which was observed by Ronyet al., (2010). Squire et al., (2013) recorded that Fasciola, Paramphistomum and Schistosoma infections were higher (p<0.005) in the adults (>24 months old) cattle.

The prevalence of parasitic diseases was lower due to only clinical diseases were studied and most of the parasites remain as subclinical form.Age, sex of cattle and season of year had no significant effect on the overall prevalence of parasitic diseases but there may have significant variation in the occurrence of some individual parasitic disease in relation to age, sex of animal and season of the year.

Table 1: Prevalence of Parasitic diseases in cattle

Disease name	No of animal Examined	No of positive	Prevalence (%)
Tick infestation	3560	195	5.48
Mite infestation		47	1.32
Fasioliasis		106	2.98
Schistosomiasis		44	1.24
Paramphistomiasis		76	2.13
Ascariasis		87	2.44
Haemonchiasis		23	0.65
Maggot		61	1.71
Hump sore		42	1.18
Overall		681	19.13

Table 2: Prevalence of Parasitic diseases in cattle based on season

Disease name	Season					
	Summer(n=1322)		Rainy(n=1213)		Winter(n=1025)	
	No of animals affected	Prevalence (%)	No of animal affected	Prevalence (%)	No of animals affected	Prevalence (%)
Tick infestation	69	5.22	71	5.85	55	5.37
Mite infestation	18	1.36	19	1.57	10	0.98
Fasioliasis	32	2.42	36	2.97	38	3.71
Schistosomiasis	15	1.13	14	1.15	15	1.46
Paramphistomiasis	24	1.82	25	2.06	27	2.63
Ascariasis	30	2.27	29	2.39	28	2.76
Haemonchiasis	8	0.61	8	0.66	7	0.68
Hump sore	17	1.29	15	1.24	10	0.98
Maggot	23	1.74	22	1.81	16	1.56
Total	236	17.85	239	19.70	206	20.10
Odd ratio	Rainy vs summer=1.13		Winter vs Rainy=1.03		Winter vs Summer=1.16	
Chi-square Test			0.15			
Level of significance			NS			

NS means not significant

Table 3: Prevalence of Parasitic diseases in cattle based on sex

Disease name	Male(n=1795)		Female(n=1765)	
	No of animals affected	Percentage (%)	No of animals affected	Percentage (%)
Tick infestation	98	5.46	97	5.50
Mite infestation	20	1.11	27	1.53
Fasioliasis	49	2.73	57	3.22
Schistosomiasis	18	1.01	26	1.47
Paramphistomiasis	37	2.06	39	2.21
Ascariasis	41	2.28	46	2.61
Haemonchiasis	11	0.61	12	0.68
Hump sore	28	1.56	14	0.79
Maggot	39	2.17	22	1.25
Total	341	19	340	19.26
Odd ratio	Male vs Female=1.02			
P-value(Chi-square Test)		0.0018		
Level of significance		NS		

NS=Not Significant (P>0.05)

Table 4: Prevalence of Parasitic diseases in cattle based on age

Disease name	Young(n=1650)		Adult(n=1910)	
	No of animals affected(<2.5 Years)	Percentage (%)	No of animals affected(>2.5Years)	Percentage (%)
Tick infestation	105	6.36	90	\4.71
Mite infestation	25	1.52	22	1.15
Fasioliasis	44	2.27	62	3.25
Schistosomiasis	14	0.85	30	1.57
Paramphistomiasis	22	1.33	54	2.83
Ascariasis	52	3.15	35	1.83
Haemonchiasis	11	0.67	12	0.63
Hump sore	13	0.79	29	1.52
Maggot	40	2.42	21	1.10
Total	326	19.76	355	18.59
Odd Ratio	Young vs Adult= 1.08			
Chi-square Test	0.0356			
Level of significance	NS			

NS=Not Significant (P>0.05)

Conclusions

According to the present study, the highest prevalence of parasitic diseases was found in tick infestation and lowest in haemonchiasis. Age, sex of cattle and season of the year had no significant (p>0.005) effect on the occurrence of parasitic diseases in cattle. Adoption of prophylactic measures such as deworming, hygienic measures and feeding management can minimize this problem.

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